

Mem. Natn. Sci. Mus., Tokyo, (26), December 1, 1993

Pamphilius sulphureipes (Hymenoptera, Pamphiliidae) and its Close Relatives¹⁾

By

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篠原 明彦*: *Pamphilius sulphureipes* (ハチ目, ヒラタハバチ科) とその近縁種

The group of *Pamphilius sulphureipes* was first proposed by BENEŠ (1974) for a single species, *P. sulphureipes* KIRBY, 1882, then known only from "Amour, Siberia", as a subgroup of his "histrio-inanitus group". SHINOHARA (1979) expanded the concept of this species-group by adding *P. coreanus* TAKEUCHI, 1938, from Korea and a new species, *P. ishikawai*, from Japan, and newly recorded *P. sulphureipes* from Korea. SHINOHARA (1981) synonymized *Anoplolyda frontimacula* MALAISE, 1943, described from Vladivostok, with *P. coreanus*, thus showing that this species occurs also in Primorskij Kraj.

In this paper, I will redefine the *sulphureipes* group to include four East Asian species, i.e., *P. sulphureipes* KIRBY, 1882, *P. coreanus* TAKEUCHI, 1938, *P. zhelochovtsevi* BENEŠ, 1974, and *P. ishikawai* SHINOHARA, 1979. *Pamphilius zhelochovtsevi*, so far known only from Primorskij Kraj, was treated by BENEŠ (1974) as a member of his "histrio subgroup" of the "histrio-inanitus group"; however, the species lacks characteristic features of the *histrio* group (= "histrio and *betulae* subgroups" of BENEŠ, see below) in male genitalia, and has more in common with the species of the *sulphureipes* group.

The *sulphureipes* group can be defined only on the phenetical basis for the moment and no evidence for its monophyly has been available. However, the members of this species-group may be separated from the others by the combination of mostly black coloration without orange area on the abdomen, smooth and glabrous head with strongly convex upper part of frons and well developed facial crest, and long 3rd antennal segment.

Males of *P. sulphureipes*, *P. coreanus*, and *P. zhelochovtsevi* are newly described here, and *P. sulphureipes* is recorded from Japan (Hokkaido) and *P. zhelochovtsevi* from Japan (Honshu) and Korea for the first time. Japanese specimens of *P. sulphureipes* and *P. zhelochovtsevi* differ slightly but distinctly from those obtained in the Russian Far East and Korea, and I propose to treat the Japanese population of each of them as a new subspecies.

The material used in this work is deposited in the National Science Museum (Nat. Hist.), Tokyo, unless otherwise stated. The following abbreviations are used for the depositories: CIS—Center for

¹⁾ This work is supported in part by the Grant-in-aid for Scientific Research No. 04640695 from the Ministry of Education, Science and Culture, Japan.

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Insect Systematics, Kangweon National University, Chuncheon; EWU—Natural History Museum, Ewha Womans University, Seoul; IAC—Ishikawa Agricultural College, Nonoichi; KU—Kobe University, Kobe; MSU—Zoological Museum, Moscow State University, Moskva; NHMS—Naturhistoriska Riksmuseet, Stockholm; ZISP—Zoological Institute, Russian Academy of Sciences, St. Petersburg.

The Group of *Pamphilius sulphureipes*

Diagnostic characters. Mostly black, without orange area on abdomen. Upper frons below ocelli strongly convex, often notched at middle; facial crest strongly convex, rounded or carinate; upper head behind transverse and lateral transverse sutures smooth and glabrous. Right mandible with basal tooth and less acute median tooth or basal shoulder of apical tooth. Antenna with 3rd segment 1.8–2.9 times as long as 4th. Hind tibia with three preapical spurs. Forewing with cell C pilose or glabrous; venation normal. Subgenital plate simple. Male genitalia: valviceps rather short, laterally flattened, dorsally angularly convex in lateral view; gonostipes, seen from above, subtriangular in outline, without plate-like process along posterior margin.

Position within the genus. The phylogenetic position of the *sulphureipes* group within *Pamphilius* is not clear, although members of this species-group resemble those of the *komonensis* subgroup of the *alternans* group (SHINOHARA, 1991) or those of the *inanitus* group (see below). The species of the *sulphureipes* group differ from those of the *komonensis* subgroup (and other members of the *alternans* group) in the lack of the “plate-like process” on the gonostipes of the male genitalia (SHINOHARA, 1991).

Pamphilius sulphureipes was included by BENEŠ (1974) in his “*histrio-inanitus* group” (subdivided into the *betulae*, *histrio*, *sulphureipes* and *inanitus* subgroups), and SHINOHARA (1979), following BENEŠ, retained his “*sulphureipes* complex” (three species) within the “*histrio-inanitus* group”. As pointed out by SHINOHARA (1985, 1991), however, BENEŠ’s “*histrio-inanitus* group” is polyphyletic, based on the possession of independently acquired similarity (i.e., the smooth, glabrous head with strongly swollen frons), and three species of the “*inanitus* subgroup” have already been transferred to the *sylvaticus* group (SHINOHARA, 1985) and one species of the “*histrio* subgroup” to the *komonensis* subgroup of the *alternans* group (SHINOHARA, 1991). The remaining species of BENEŠ’s “*histrio-inanitus* group” may be reorganized into three species-groups: 1) the *histrio* group, corresponding to BENEŠ’s “*histrio* and *betulae* subgroups” (excluding *P. takeuchii* and *P. zhelochovtsevi*), associated with *Salix* and *Populus*; 2) the *inanitus* group, represented by two very closely related species (or possibly subspecies of one and the same species) feeding on *Rosa*; and 3) the *sulphureipes* group (SHINOHARA’s “*sulphureipes* complex” plus *P. zhelochovtsevi*).

Of these, the *histrio* group is a well characterized monophyletic group, quite different from the *sulphureipes* group and others particularly in male genitalic characters. On the other hand, the *inanitus* group has much in common with the *sulphureipes* group; however, I tentatively treat them as separate groups, because of the large difference in coloration, length of the 3rd antennal segment and shape of the apiceps in the male genitalia.

Relationship and distribution of the component species. The phylogenetic relationship of the four component species is uncertain. However, *P. coreanus* and *P. ishikawai* seem most closely related, as indicated by the almost identical male genitalia, and this pair of species (*P. coreanus* + *P. ishikawai*), *P. sulphureipes*, and *P. zhelochovtsevi* are somewhat isolated morphologically from one another.

The distributional ranges of *P. coreanus* and *P. ishikawai* do not overlap; the former occurs in Khabarovskij Kraj to the Korean Peninsula, whereas the latter is restricted to Honshu, Japan. This vicariant distribution of the two closely related species may suggest that they have arisen from a common ancestor by subdivision of its total range. The same interpretation applies to the somewhat differentiated continental and Japanese populations of each of *P. sulphureipes* and *P. zhelochovtsevi*, although in these species the continental and Japanese populations seem to have deviated only to the subspecific level.

In the cases of *P. coreanus* + *P. ishikawai* and *P. zhelochovtsevi*, where the Japanese representatives have been found only in Honshu, the ancestor of the Japanese population possibly came from the continent through the Korean Peninsula. This hypothesis will become more plausible, if *P. ishikawai* or *P. zhelochovtsevi* are discovered in Kyushu in the future.

On the other hand, *P. sulphureipes* is more boreal in distribution. It is the only species of this species-group found in Sakhalin and Hokkaido, and it has not been discovered in Honshu. In Korea, *P. sulphureipes* occurs only on higher mountains, while *P. coreanus* and *P. zhelochovtsevi* have been found at various altitudes. Possibly this species expanded its range from the continent to Hokkaido through Sakhalin.

Pamphilius sulphureipes sulphureipes KIRBY

(Figs. 1 B-E; 2 A-B)

Pamphilius sulphureipes KIRBY, 1882, p. 343; BENEŠ, 1974, p. 309; SHINOHARA, 1979, p. 152.

For synonymy and references, see SHINOHARA (1979).

Female. For a description, see BENEŠ (1974) and SHINOHARA (1979).

Male (hitherto undescribed) (Fig. 2 A-B). Length 8-9 mm. Head black, with anterior part before line connecting facial crests and swellings in upper part of frons, malar space and large mark on gena yellow; mandible yellow, with inner half black and apex rufous; antennal scape yellow, with dorsal surface black; pedicel and flagellum dark brown, dorsally somewhat blackish. Thorax black with the following parts pale yellow: large rounded spot covering most of lateral pronotum, elongate spot on cervical sclerite, tegula, posterior half of mesoscutal median lobe, mesoscutellum, large transverse mark covering almost all lateral surface of mesepisternum, small spot at dorsal margin of and narrow posterior margin of mesepimeron, metascutellum, most of lateral surface of metepisternum, spot at dorsal margin of and posterior margin of metepimeron. Legs pale yellow, with coxal bases black. Wings hyaline, slightly brownish; stigma semi-translucent brown, darkened marginally; veins dark brown, with C and Sc pale brown. Abdomen black dorsally, with narrow lateral margins yellow, and yellow ventrally, with broad base of each sternum black.

Upper frons below ocelli very strongly convex, with rather deep median notch reaching median fovea; ocellar basin deep, triangular in outline, with anterolateral extension usually not reaching antennal furrow; median fovea shallow, elongate, often indistinct; frontoclypeal crest low, rounded; facial crest very strongly convex, rather sharply carinate. Upper part of head behind transverse and lateral transverse sutures, and upper part of frons smooth, often partly weakly coriaceous, with very sparse, rather ill-defined punctures; area from facial crest to lateral transverse suture very shallowly rugose; paraantennal field smooth, often shallowly rugose or coriaceous particularly dorsally, without distinct punctures; supraclypeal area and clypeus somewhat rugose and coriaceous, with very dense,

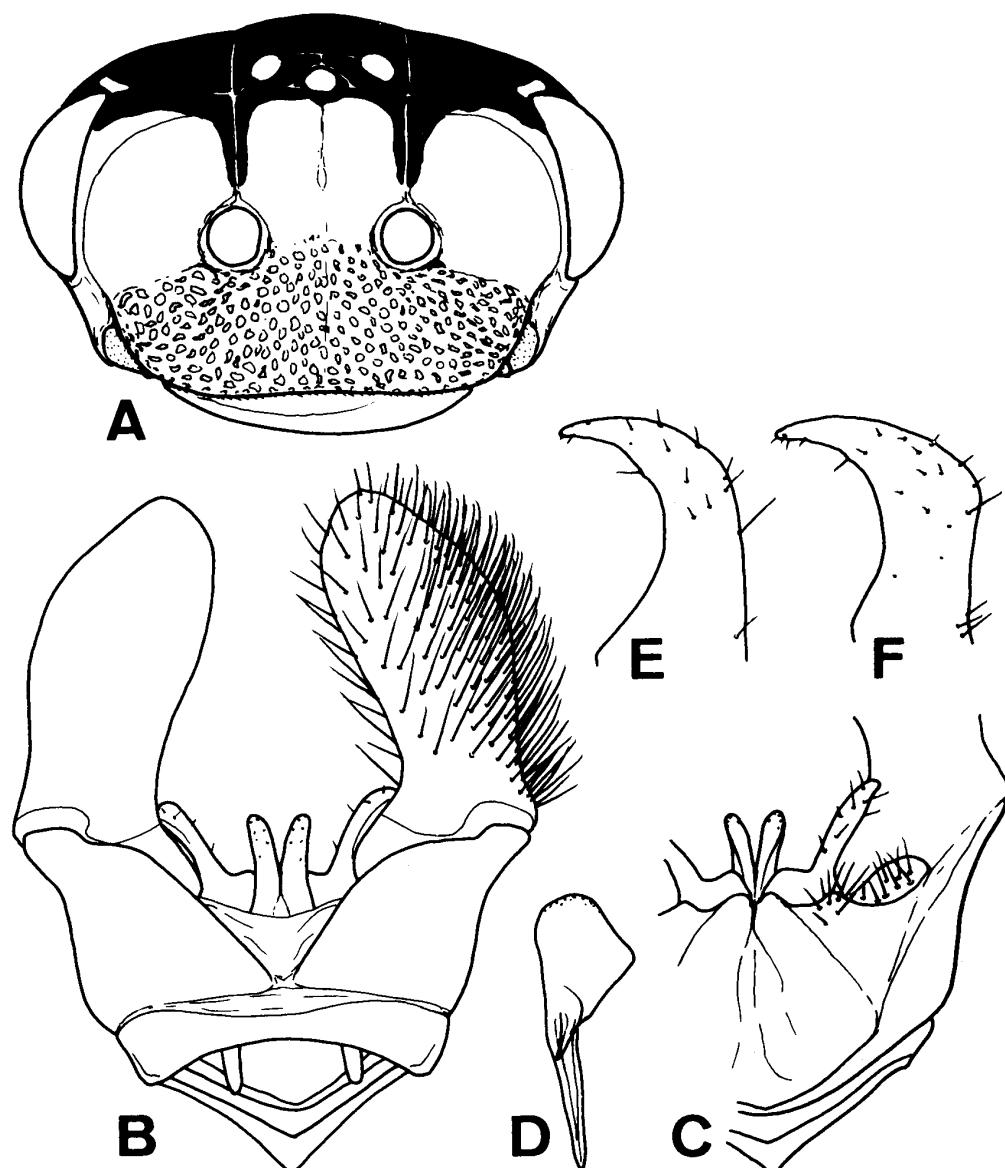


Fig. 1. *Pamphilus sulphureipes hokkaidonis* n. subsp., paratotype (A, F) and *P. sulphureipes sulphureipes* KIRBY, Mirugam (B-E), ♂.—A, Head, frontal view; B, genitalia, dorsal view; C, do., ventral view; D, penis valve, lateral view; E-F, apiceps, inner aspect.

generally large and deep, irregular punctures all over; gena somewhat rugose and coriaceous, with sparse, very shallow, ill-defined punctures; head nearly glabrous before crassa, except for rather densely pilose gena, clypeus and supraclypeal area and very sparsely pilose frons and paraantennal field. Antenna with 18–21 (usually 20 or 21) segments; 3rd segment 2.1–2.5 (usually 2.1–2.3) times as long as 4th. Tarsal claw with rounded basal lobe and inner tooth about as long as outer one. Forewing with cell C pilose all over. Subgenital plate with apical margin broadly rounded. Genitalia as in Fig. 1 B–E; apiceps with ventral margin usually not produced.

Distribution. Russia ("Amour, Siberia", Primorskij Kraj, Sakhalin), Korea.

Material examined. Russia: 1 ♀, "Primor'e, 18 km YuV Spasska, Evseevka, 18. VI. 81, LELEJ, A." (ZISP). Korea: 1 ♀, Mirugam (Puktae-sa), 1,300 m, Mt. Odae-san, Kangwon-do, 10. VI. 1987,

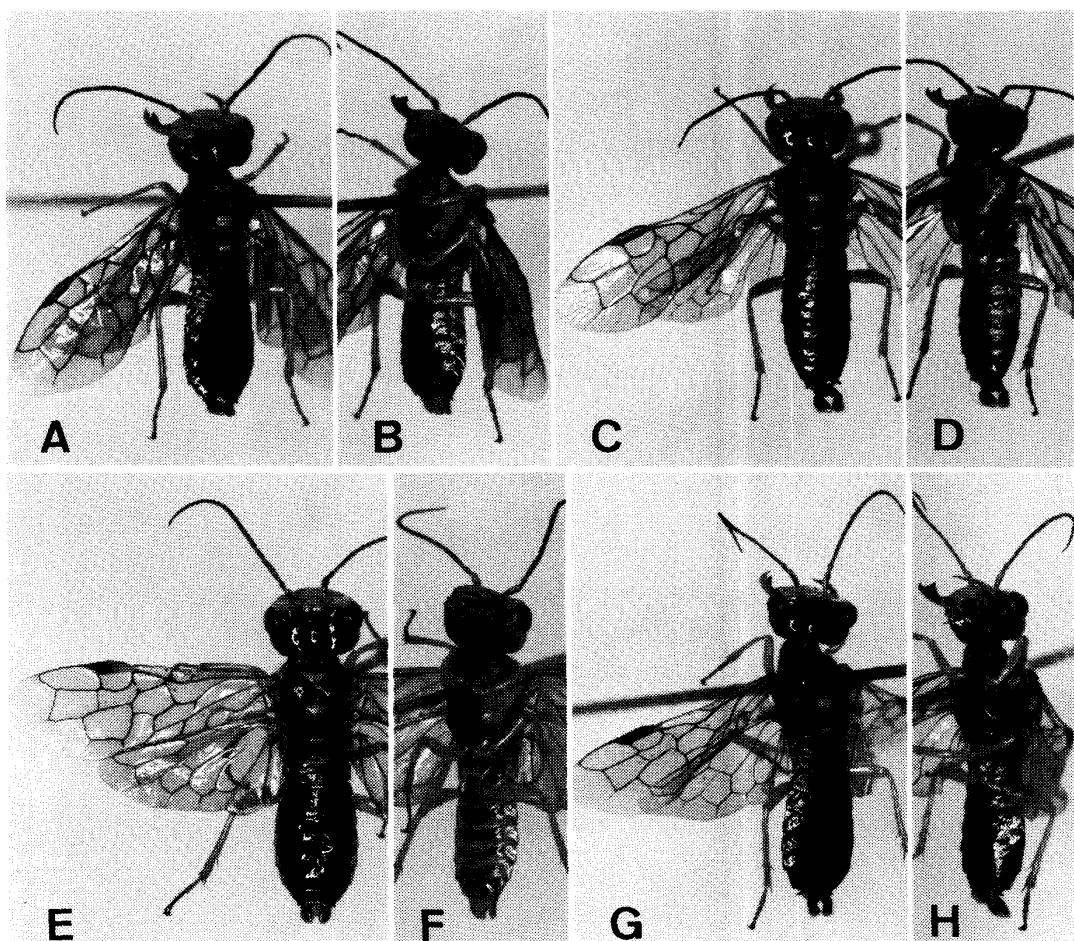


Fig. 2. *Pamphilius* spp., ♂.—A–B, *Pamphilius sulphureipes sulphureipes* KIRBY, Mirugam; C–D, *P. sulphureipes hokkaidonis* n. subsp., holotype; E–F, *P. coreanus* TAKEUCHI, Tokchom-kogae; G–H, *P. ishikawai* SHINOHARA, Minoto.

A. SHINOHARA; 1♂, same data except for 22. V. 1989; 9♂, same data except for 30. V.–2. VI. 1991; 2♂, same data except for 30–31. V. 1992; 6♂, same data except for 27. V.–1. VI. 1993; 10♂, 2♀, Popkye-sa, 1,300 m, Mt. Chiri-san, Kyōngsangnam-do, 24–26. V. 1987, A. SHINOHARA.

For more records, see BENEŠ (1974) and SHINOHARA (1979).

Pamphilius sulphureipes hokkaidonis n. subsp.
(Figs. 1 A, F; 2 C–D)

Differs from the nominotypical subspecies in the following points.

Female. Unknown.

Male (Fig. 2 C–D). Length 8.5–9.5 mm. Most of gena and small supraocular spot yellow (Fig. 1 A); yellow area on mesepimeron and metepimeron enlarged, with anterior and posterior marks on each epimeron usually partly fused; apiceps in male genitalia with ventral margin distinctly produced (Fig. 1F). Antenna with 19–21 segments; 3rd segment 2.1–2.5 (most frequently 2.3) times as long as 4th.

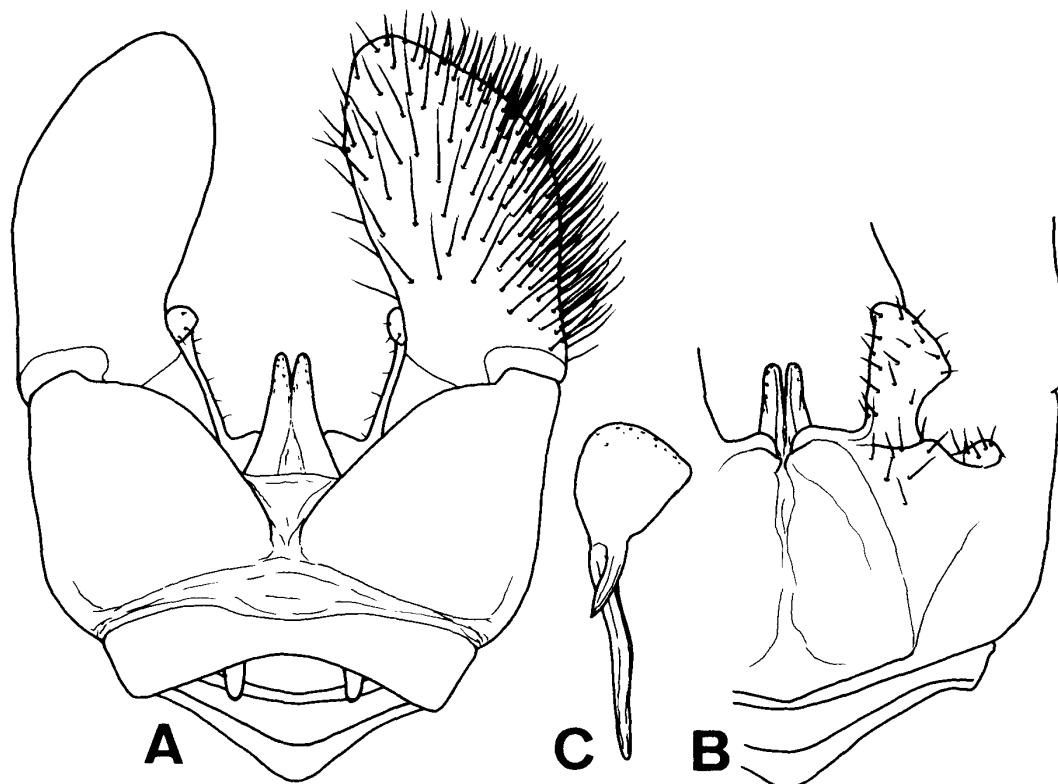


Fig. 3. *Pamphilius coreanus* TAKEUCHI, ♂, Chin-kogae, genitalia.—A, Dorsal view; B, ventral view; C, penis valve, lateral view.

Distribution. Japan (Hokkaido).

Holotype: ♂, Yamada-onsen, 800 m, Tokachi, Hokkaido, 21. VI. 1990, A. SHINOHARA, in NSMT.

Paratypes: 2♂, same data as for holotype; 3♂, same data except for 24. VI. 1991; 1♂, same data except for 21–25. VI. 1992.

***Pamphilius coreanus* TAKEUCHI**

(Figs. 2 E–F; 3)

Pamphilius (Anoplolyda) coreanus TAKEUCHI, 1938, p. 225; SHINOHARA, 1979, p. 155; SHINOHARA, 1981, p. 173.

For synonymy and references, see SHINOHARA (1981).

Female. For a description, see TAKEUCHI (1938) and SHINOHARA (1979, 1981).

Male (hitherto undescribed) (Fig. 2 E–F). Length 7–10 mm. Head black, with anterior part before line connecting facial crests and swellings in upper part of frons, malar space and large mark on gena (often covering most of gena) yellow; mandible yellow, with inner half black and apex rufous; antennal scape yellow, with dorsal surface black; pedicel and flagellum dark brown. Thorax black with the following parts pale yellow: large rounded spot covering most of lateral pronotum, very narrow posterolateral corner of pronotum, elongate spot on cervical sclerite, tegula, posterior half of mesoscutal median lobe, mesoscutellum, large transverse mark covering almost all lateral surface of mesepisternum, minute spot at dorsal margin of and narrow posterior margin of

mesepimeron, metascutellum, most of lateral surface of metepisternum, spot at dorsal margin of and posterior margin of metepimeron. Legs pale yellow, with coxal bases black. Wings hyaline, slightly brownish; stigma bicolored with basal half yellow and apical half black; veins blackish brown, with C and Sc yellow. Abdomen black dorsally, with narrow lateral margins yellow, and yellow ventrally, with broad base of each sternum and spot around each spiracle black.

Upper frons below ocelli very strongly convex, with rather shallow median notch reaching median fovea; ocellar basin deep, triangular in outline, with anterolateral extension usually reaching antennal furrow; median fovea small, shallow, punctiform; frontoclypeal crest low, rounded, in lateral view slightly swollen on clypeus; facial crest very strongly convex, very bluntly carinate or rounded. Upper part of head behind transverse and lateral transverse sutures, upper part of frons, and paraantennal field very smooth, almost impunctate; area from facial crest to lateral transverse suture smooth to very shallowly rugose; supraclypeal area and clypeus somewhat rugose and coriaceous, with very dense, generally large and deep, irregular punctures all over; gena somewhat rugose and coriaceous, with sparse, very shallow, ill-defined punctures; head nearly glabrous before crassa, except for rather densely pilose gena, clypeus and supraclypeal area and very sparsely pilose frons and paraantennal field. Antenna with 21–23 segments; 3rd segment 2.0–2.6 (usually 2.2–2.5) times as long as 4th. Tarsal claw with rounded basal lobe and inner tooth a little shorter than outer one. Forewing with cell C pilose but basal and posterior parts glabrous. Subgenital plate with apical margin broadly rounded. Genitalia as in Fig. 3.

Distribution. Russia (Khabarovskij Kraj, Primorskij Kraj), Korea.

Material examined. Russia: 1♀, "Wjazemskij, 100 km SSW Chabarovsk, 28. V. 1968, A. Shtundjuk" (MU). Korea: 1♂, Tokchom-kogae, 510 m, nr. Chuncheon, Kangwon-do, 23–24. V. 1991, A. SHINOHARA; 3♂, 3♀, same data except for 22. V. 1992; 61♂, Chin-kogae, 850 m, Mt. Odae-san, Kangwon-do, 1–2. VI. 1992, A. SHINOHARA; 9♂, 1♀, same data except for 26. V. 1993; 1♀, Mirugam (Puktae-sa), 1,300 m, Mt. Odae-san, Kangwon-do, 9. VI. 1987, A. SHINOHARA; 1♂, same data except for 22. V. 1989; 1♀, same data except for 29. V. 1991; 1♀, same data except for 2. VI. 1991; 46♂, 1♀, same data except for 28–31. V. 1992; 12♂, 3♀, same data except for 27. V–1. VI. 1993; 1♀, "1956. 6. 9. Kwangnung, Kang Yong-suk" (EWU); 1♀, Popkye-sa, 1,300 m, Mt. Chiri-san, Kyongsangnam-do, 24–28. V. 1987, A. SHINOHARA.

For more records, see SHINOHARA (1979, 1981).

Pamphilius ishikawai SHINOHARA

(Figs. 2 G–H, 4)

Pamphilius ishikawai SHINOHARA, 1979, p. 156; SHINOHARA, 1981, p. 174.

Female & male. Description given by SHINOHARA (1979).

Distribution. Japan (Honshu).

Material examined. Fukushima Pref.: 4♂, Shitokigawa-keikoku, Iwaki, 6. V. 1982, A. SHINOHARA. Niigata Pref.: 1♂, Hiuchi-toge, 23. VI. 1983, A. SHINOHARA. Saitama Pref.: 1♀, Gandoba, Tsundashi-pass, Ootaki, 28. VII. 1983, T. NANBU. Tokyo Met.: 20♂, 1♀, Kamiange, Mt. Jinba-yama, 1–5. V. 1979, A. SHINOHARA & N. MATSUBA; 5♂, same data except for 8. V. 1982, A. SHINOHARA; 1♂, same data except for 9. V. 1987; 4♂, same data except for 6. V. 1990; 6♂, same data except for 6. V. 1991; 1♀, Mt. Mitake-san, Okutama, 17. V. 1988, A. SHINOHARA. Kanagawa

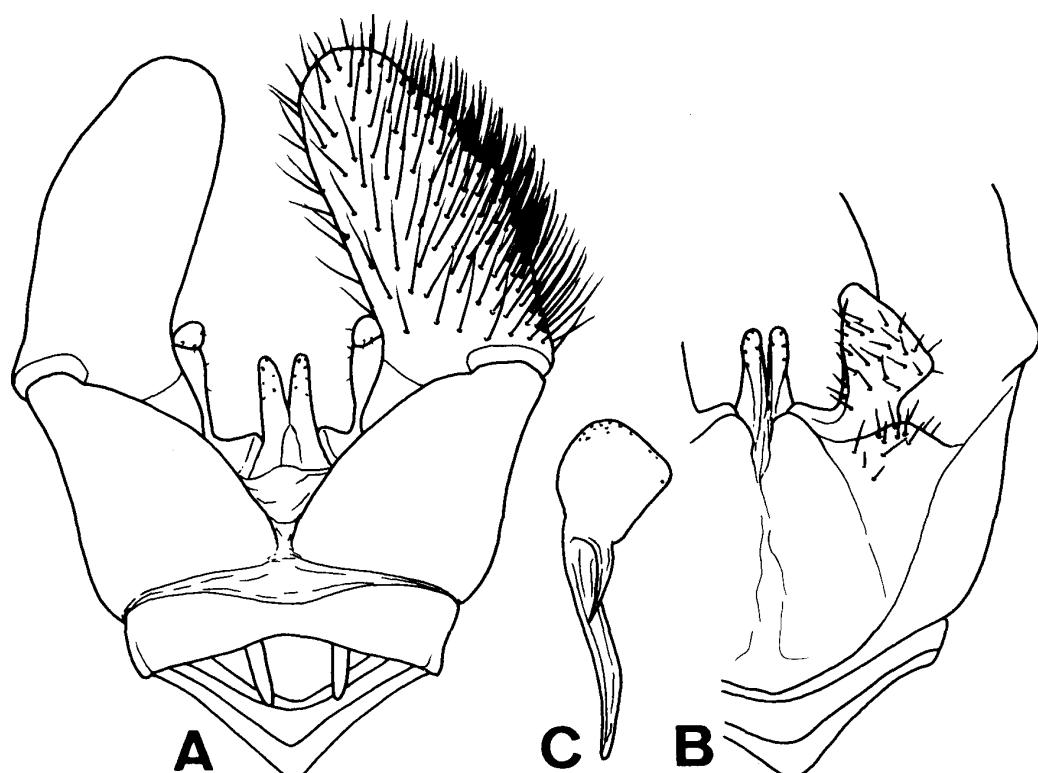


Fig. 4. *Pamphilius ishikawai* SHINOHARA, ♂, Kamiange, genitalia.—A, Dorsal view; B, ventral view; C, penis valve, lateral view.

Pref.: 1 ♀, Kamakura, 27. IV. 1952, H. NAGASE. Nagano Pref.: 2 ♀, Yarisawa, 1,600–1,900 m, Kamikochi, 18–22. VII. 1989, A. SHINOHARA; 2 ♂, 4 ♀, Minoto, 1,800 m, Mts. Yatsugatake, 29. VII–7. VIII., 1982, A. SHINOHARA; 11 ♂, 1 ♀, same data except for 29. VII–3. VIII. 1986; 1 ♂, 3 ♀, same data except for 4–8. VIII. 1987; 1 ♂, 4 ♀, same data except for 4–8. VIII. 1988; 1 ♂, 2 ♀, same data except for 6–9. VIII. 1991. Toyama Pref.: 1 ♂, Mt. Tongari-yama, 23. V. 1982, A. SHINOHARA. Aichi Pref.: 1 ♀, Uradani, Kitashidara, 7. VII. 1972, H. YAMADA.

For more records, see SHINOHARA (1979, 1981).

Pamphilius zhelochovtsevi zhelochovtsevi BENEŠ

(Figs. 5; 6 A–D)

Pamphilius zhelochovtsevi BENEŠ, 1974, p. 306.

Female (Fig. 6 A–B). Description given by BENEŠ (1974).

Male (hitherto undescribed) (Fig. 6 C–D). Length 7.5–10 mm. Head black, with anterior part before line connecting facial crests and swellings in upper part of frons, malar space and entire gena yellow (Fig. 5 A); mandible yellow, with fading black mark in inner half and apex rufous; antennal scape yellow, with large black spot dorsally; pedicel and flagellum dark brown, with pedicel dorsally and flagellum dorsally and apically somewhat blackish. Thorax black with the following parts pale yellow: large rounded spot covering most of lateral pronotum, most of ventral surface of cervical sclerite, tegula, posterior half of mesoscutal median lobe (sometimes reduced), mesoscutellum, entire

mesepisternum, except for narrow posterior margin and line along borders between anepisternum and preepisternum, spot at dorsal margin of and broad posterior margin of mesepimeron, metascutellum, lateral surface of metepisternum, broad dorsoposterior margin of metepimeron. Legs pale yellow, with coxal bases black. Wings hyaline, with basal 2/3 of forewing and most of hindwing usually more or less stained with blackish brown; stigma yellow with posteroapical part blackish brown; veins blackish brown, with C, Sc, R and part of veins in basal 1/3 of forewing yellow. Abdomen black dorsally, with narrow lateral margins yellow, and yellow ventrally, sometimes with narrow visible base of each sternum black.

Upper frons below ocelli very strongly convex, with rather deep median notch reaching median fovea; ocellar basin rather shallow, triangular in outline, with anterolateral extension reaching antennal furrow; median fovea small, punctiform; frontoclypeal crest low, very bluntly carinate; facial crest very strongly convex, rounded. Upper part of head behind transverse and lateral transverse sutures, upper part of frons and paraantennal field smooth, partly very weakly coriaceous, almost impunctate, only frons and paraantennal field with very sparse, ill-defined punctures dorsally; area from facial crest to lateral transverse suture smooth or very shallowly rugose; supraclypeal area and clypeus somewhat rugose and coriaceous, with rather dense, generally large and deep, irregular punctures all over; gena somewhat rugose and coriaceous, with rather sparse, shallow, ill-defined punctures; head nearly glabrous before crassa, except for rather densely pilose gena, clypeus and supraclypeal area. Antenna with 19–24 (usually 20–22) segments; 3rd segment 1.7–2.2 (usually 1.8–2.0) times as long as 4th; apex of 3rd segment oblique. Tarsal claw with rounded basal lobe and inner tooth a little shorter than outer one. Forewing with cell C entirely glabrous. Subgenital plate with apical margin broadly rounded. Genitalia as in Fig. 5 B–D.

Distribution. Russia (Primorskij Kraj); Korea [new record].

Material examined. Russia: ♀ (holotype), Vladivostok Dist., Sedanka, ca. 43N. 133E., 25. VII. 1937, N. FILIPPOV (MSU); 1 ♀ (paratype), "Yuzhno-Ussurijskij Kraj, SYCHEV," "Pamphilius sp.? MALAISE vid.," "Paratypus," "Pamphilius zhelochovtsevi n. sp. det. BENEŠ, 1973" (NHMS). Korea: 1 ♀, Tokchom-kogae, 510 m, nr. Chuncheon, Kangwon-do, 23–24. V. 1991, A. SHINOHARA; 3 ♂, Mirugam (Puktae-sa), 1,300m, Mt. Odae-san, Kangwon-do, 22. V. 1992, A. SHINOHARA; 24 ♂, same data except for 27. V.–1. VI. 1993.

Pamphilius zhelochovtsevi nipponicus n. subsp.

(Fig. 6 E–H)

Differs from the nominotypical subspecies in having the anterior margin of the stigma darkened and the wings uniformly hyaline, without distinct infuscation towards the base.

Female (Fig. 6 E–F). Length 9.5 mm. Yellow marks on head and thorax smaller; spots on frons and lateral pronotum missing or nearly so. Antenna with 20–21 segments; 3rd segment 1.9–2.0 times as long as 4th.

Male (Fig. 6 G–H). Length 7.5–9 mm. Ventral part of mesopleuron entirely yellow except for narrow posterior margin; borders between anepisternum and preepisternum not black-marked. Antenna with 19–21 segments; 3rd segment 1.8–2.2 times as long as 4th.

Distribution. Japan (Honshu).

Holotype: ♀, Yarisawa, 1,600–1,900 m, Kamikochi, Nagano Pref., 18–22. VII. 1989, A. SHINOHARA, in NSMT.

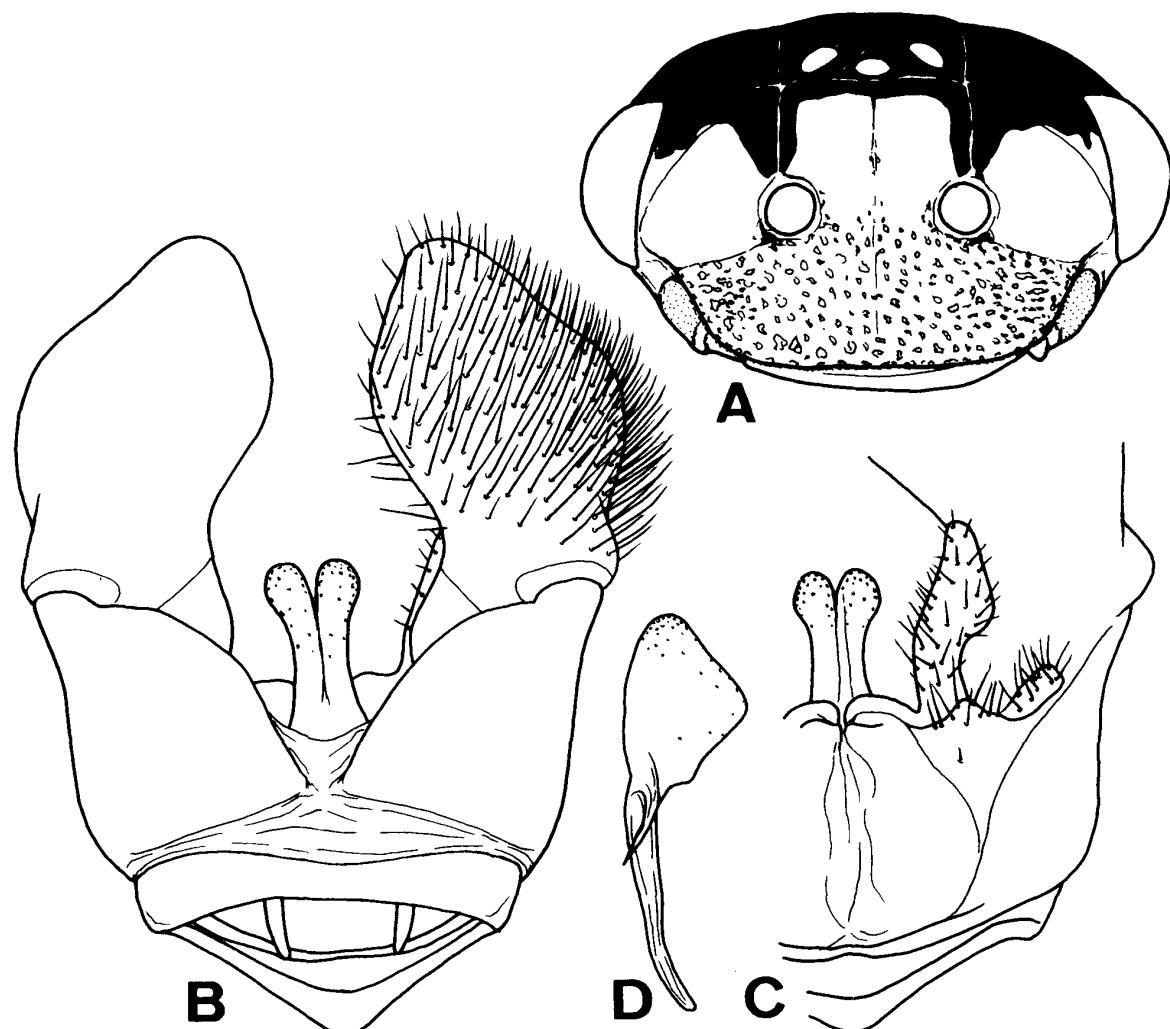


Fig. 5. *Pamphilus zhelochovtsevi zhelochovtsevi* BENEŠ, ♂, Mirugam.—A, Head, frontal view; B, genitalia, dorsal view; C, do., ventral view; D, penis valve, lateral view.

Paratypes: 1♂, Mt. Takahora-yama, Iwate Pref., 30. V. 1980, K. YASUDA; 1♀, 1♂, Mure, Nagano Pref., 21. V. 1932, K. SATO; 1♂, Takayama, Gifu Pref., 19. V. 1979, A. SHINOHARA; 1♂, Kamadani, Mt. Haku-san, Ishikawa Pref., 26. V. 1966, I. TOGASHI (IAC); 2♂, Mt. Hachibuse-yama, Hyogo Pref., 21. V. 1965, T. NAITO (KU).

Key to the Species and Subspecies

1. Cell C of forewing entirely glabrous. Female: Clypeus entirely yellow; mesoscutal lateral lobe, mesepisternum, and lateral margin of abdomen marked with yellow (Fig. 6 A–B, E–F). Male: Head in frontal view with ventral part of paraantennal field strongly expanded laterally and clypeus comparatively small (Fig. 5 A); mesopreepisternum largely or entirely yellow (Fig. 6 D, H); genitalia as in Fig. 5 B–D, valviceps elongate. *P. zhelochovtsevi* 2
- Cell C of forewing pilose at least in anterior part. Female: Clypeus entirely black; mesoscutal lateral lobe, mesepisternum, and lateral margins of abdomen without yellow marking. Male: Head in frontal view with ventral part of paraantennal field not strongly expanded laterally

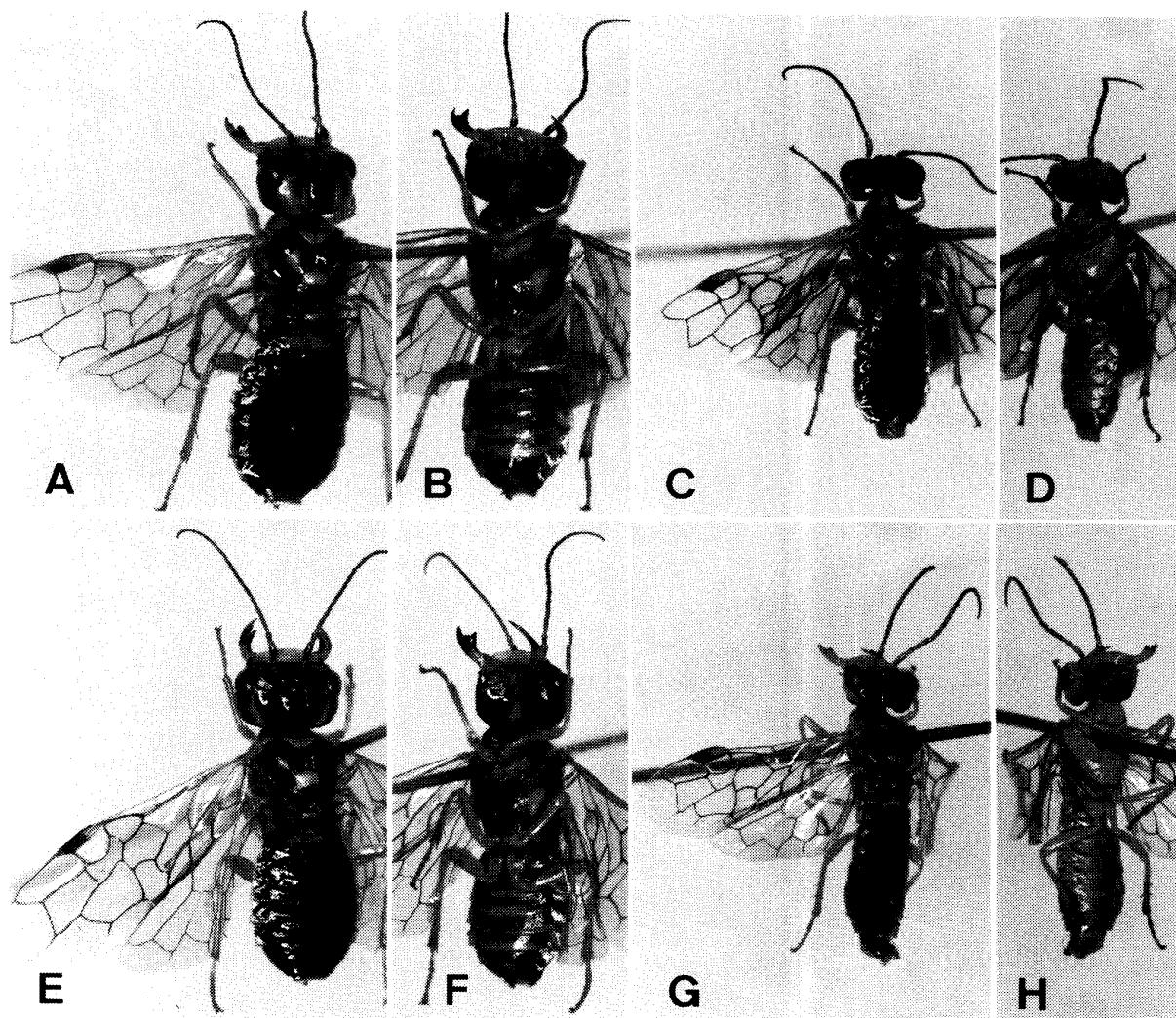


Fig. 6. *Pamphilius zhelochovtsevi zhelochovtsevi* BENES, ♀, Tokchom-kogae (A-B), ♂, Mirugam (C-D), *P. zhelochovtsevi nipponicus* n. subsp., ♀, holotype (E-F) and ♂, paratype, Takayama (G-H).

and clypeus comparatively large (Fig. 1 A); mesopreepisternum entirely black (Fig. 2 B, D, F, H); genitalia not as above, valviceps short. 3

2. Anterior margin of stigma usually yellow; wings distinctly infuscated towards base. Male: Ventral part of mesopleuron usually with black band along borders between anepisternum and preepisternum (Fig. 6 D). *P. z. zhelochovtsevi*

— Anterior margin of stigma darkened; wings not distinctly infuscated toward base. Male: Ventral part of mesopleuron entirely yellow, except for very narrow posterior margin (Fig. 6 H). *P. z. nipponicus*

3. Stigma black, with only extreme base pale. Male: Gena, cervical sclerite, lateral pronotum, mesepisternum, and venter of abdomen entirely black, except for small genal spot, broad anterior margin (anterior 1/4 or less) of mesepisternum, posterior margin of abdominal sternum and most of subgenital plate (Fig. 2 G-H). *P. ishikawai*

— Stigma not as above. Male: Gena, cervical sclerite, lateral pronotum, mesepisternum, and venter of abdomen largely yellow (Fig. 2 A-F). 4

4. Stigma yellow basally and black apically; cell C of forewing pilose anteriorly and glabrous posteriorly. *P. coreanus*
- Stigma semi-translucent brown, darkened marginally; cell C of forewing densely pilose all over. *P. sulphureipes* 5
5. Male: Gena black, with large yellow mark; supraocular spot absent; apiceps with ventral margin not distinctly produced (Fig. 1 E). *P. s. sulphureipes*
- Male: Gena mostly yellow; supraocular spot present (Fig. 1 A); apiceps with ventral margin distinctly produced (Fig. 1 F). *P. s. hokkaidonis*

Acknowledgments

I wish to thank the following persons for the gift or loan of the material used in this work: Dr. A. V. ANTROPOV (MSU), Prof. Y. ARITA (Meijo University, Nagoya), Mr. H. NAGASE (Kamakura), Prof. T. NAITO (KU), Mr. T. NANBU (Yorii), Dr. Per Inge PERSSON (NHMS), Prof. B. J. RHO (EWU), Prof. I. TOGASHI (IAC), Mr. K. YASUDA (Okinawa Branch, Tropical Agriculture Research Center, Ishigaki), and Dr. A. ZINOVJEV (ZISP). My hearty thanks are also due to Mr. H. HARA (Doto Branch, Hokkaido Forestry Research Institute, Shintoku), Mr. Y. KOBAYASHI (Azumi), Prof. H. C. PARK (Kyungpook National University, Taegu), and Prof. K. T. PARK (CIS) for their kind help during my collecting trips, and Dr. S.-I. UENO (NSMT) for his critical reading of an earlier version of the manuscript.

要 約

ヒラタハバチ科 *Pamphilius* 属の *sulphureipes* 種群にはこれまで *P. sulphureipes* KIRBY, *P. coreanus* TAKEUCHI, *P. ishikawai* SHINOHARA の 3 種が含められていたが (SHINOHARA, 1979), 近縁種群の再検討の結果, *P. zhelochovtsevi* BENEŠ も同種群に含まれるべきことが明らかになった。これら 4 種は *P. inanitus* 種群および *P. alternans* 種群の *P. komonensis* 亜群の種に似るが, 体色がほとんど黒で腹部にオレンジ色の班紋を欠くこと, 頭部背面の表面が平滑で毛を欠くこと, frons の上部が強く隆起し facial crest がよく発達すること, および触角第 3 節が長いことによって区別できる。 *P. sulphureipes* 種群の単系統性および他種群との系統関係は明らかでない。

Pamphilius sulphureipes 種群に属する 4 種は次のように整理される。

1. *Pamphilius sulphureipes sulphureipes* KIRBY, 1882
分布: ロシア (“アムール”, 沿海州, サハリン), 朝鮮半島
Pamphilius sulphureipes hokkaidonis n. subsp.
分布: 日本 (北海道)
2. *Pamphilius coreanus* TAKEUCHI, 1938
分布: ロシア (ハバロフスク州, 沿海州), 朝鮮半島
3. *Pamphilius ishikawai* SHINOHARA, 1979
分布: 日本 (本州)
4. *Pamphilius zhelochovtsevi zhelochovtsevi* BENEŠ, 1974
分布: ロシア (沿海州), 朝鮮半島 [新記録]
Pamphilius zhelochovtsevi nipponicus n. subsp.
分布: 日本 (本州)

このうち *P. sulphureipes hokkaidonis* と *P. zhelochovtsevi nipponicus* の 2 新亜種はそれぞれの種の日本から初めての記録となる。 *Pamphilius ishikawai* を除く各(亜)種についてはこれまで未知であった雄を記載し, 同種

群の全(亜)種について検索表を作成した。

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